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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,731	09/04/2003	Yoshiaki Tanaka	10844-34US (203067D-1)	4770

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PHILADELPHIA, PA 19103

EXAMINER

ROE, JESSEE RANDALL

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/18/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/656,731

Applicant(s)

TANAKA, YOSHIAKI

Examiner

Jessee Roe

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 11-14 and 23-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-22 and 51-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1-10, 15-22, and 51-58 remain for examination wherein claims 1, 3-10, 15-22, and 51 are amended and claims 11-14 and 23-50 are withdrawn from consideration.

Status of Prior Rejections

The previous rejection of claims 1, 3 and 5 under 35 U.S.C. 102(b) as being anticipated by Kliever (US 3,280,629) and Takemoto (JP 2003-034831) are withdrawn in view of the Applicant's amendments to the claims. The previous rejection of claims 1-6 under 35 U.S.C. 102(b) as being anticipated by JP 63-262438 is withdrawn in view of the Applicant's arguments/amendments to the claims. The previous rejection of claims 7-10 under 35 U.S.C. 103(a) as being unpatentable over Saruwatari (JP 11-40025) is withdrawn in light of the Applicant's amendments to the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-266034.

In regards to claims 1-2, JP '034 (abstract) teaches fuse compositions that

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overlap the compositions as claimed in the instant invention. JP '034 teaches a fuse element consisting of a small amount of copper and the balance being **one or more** kinds of metals among lead (Pb), bismuth (Bi), indium (In), cadmium (Cd), antimony (Sb), and tin (Sn). The fuse composition of JP '034 consisting of Cu, Sb, In, Sn, and Bi, does not contain Pb or Cd as required in the amended instant claim 1. The overlapping compositions of JP '034 compared to that of the instant invention are shown in the table below.

Element	From Instant Claims	JP ('034)	Overlapping range
From Instant Claim 1		abstract	
In	15%-37%	0.01%-30%	15%-30%
Sn	5%-28%	0.01%-40%	5%-28%
Bi	balance	0.01%-50%	26.5%-50%
From Instant Claim 2		(abstract)	
Cu	0.1%-3.5%	0.01%-2%	0.1%-2%
Sb	0.1%-3.5%	0.01%-15%	0.1-3.5%

The ranges disclosed by JP '034 for indium (In), tin (Sn), bismuth (Bi), antimony (Sb) and copper (Cu) are within the ranges claimed in the instant invention.

The Examiner notes that the disclosed composition of the alloy fuse overlaps with the composition of the claimed invention. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed alloy fuse composition from the disclosed ranges of JP '034 because JP '034 teaches the same utility (an alloy fuse composition) throughout the whole disclosed range.

In regards to claims 3-4, the Examiner asserts that that fuses of the cited prior art are formed from alloys and would inherently be sensitive to temperature and therefore

would inherently qualify as alloy thermal fuses.

In regards to claims 5-6, the Examiner asserts that the alloys of the cited prior art would have inevitable impurities.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-266035.

In regards to claims 1-2, JP '035 (abstract) teaches fuse compositions that overlap the compositions as claimed in the instant invention. JP '035 teaches a fuse element consisting of a specified amount of aluminum (Al) (0.01-10%), gold (Au) or silver (Ag), and the balance being **one or more** kinds of metals among lead (Pb), bismuth (Bi), indium (In), cadmium (Cd), antimony (Sb), and tin (Sn). The fuse composition of JP '035 consisting of Ag or Au, Sb, In, Sn, and Bi, does not contain Pb or Cd as required in the amended instant claim 1. The overlapping compositions of JP '035 compared to that of the instant invention are shown in the table below.

Element	From Instant Claims	JP ('035)	Overlapping range
From Instant Claim 1		abstract	
In	15%-37%	0.01%-30%	15%-30%
Sn	5%-28%	0.01%-40%	5%-28%
Bi	balance	0.01%-50%	28%-50%
From Instant Claim 2		(abstract)	
Ag or Au	0.1%-3.5%	0.01%-10%	0.1%-3.5%
Sb	0.1%-3.5%	0.01%-15%	0.1%-3.5%

The ranges disclosed by JP '035 for indium (In), tin (Sn), bismuth (Bi), silver (Ag) or gold (Au), and antimony (Sb) are within the ranges claimed in the instant invention.

The Examiner notes that the disclosed composition of the alloy fuse overlaps with the composition of the claimed invention. Therefore, a prima facie case of

obviousness exists. See MPEP 2144.05.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed alloy fuse composition from the disclosed ranges of JP '035 because JP '035 teaches the same utility (an alloy fuse composition) throughout the whole disclosed range.

In regards to claims 3-4, the Examiner asserts that that fuses of the cited prior art are formed from alloys and would inherently be sensitive to temperature and therefore would inherently qualify as alloy thermal fuses.

In regards to claims 5-6, the Examiner asserts that the alloys of the cited prior art would have inevitable impurities.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-270437.

In regards to claims 1-2, JP '437 (abstract) teaches fuse compositions that overlap the compositions as claimed in the instant invention. JP '437 teaches a fuse element consisting of a specified amount of aluminum (Al) (0.01-10%), copper (Cu), and the balance being **one or more** kinds of metals among lead (Pb), bismuth (Bi), indium (In), cadmium (Cd), antimony (Sb), and tin (Sn). The fuse composition of JP '437 consisting of Cu, Sb, In, Sn, and Bi, does not contain Pb or Cd as required in the amended instant claim 1. The overlapping compositions of JP '437 compared to that of the instant invention are shown in the table below.

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Element	From Instant Claims	JP ('437)	Overlapping range
From Instant Claim 1		abstract	
In	15%-37%	0.01%-30%	15%-30%
Sn	5%-28%	0.01%-40%	5%-28%
Bi	balance	0.01%-50%	26.5%-50%
From Instant Claim 2		(abstract)	
Cu	0.1%-3.5%	0.01%-2.0%	0.1%-2.0%
Sb	0.1%-3.5%	0.01%-15%	0.1%-3.5%

The ranges disclosed by JP '437 for indium (In), tin (Sn), bismuth (Bi), copper (Cu), and antimony (Sb) are within the ranges claimed in the instant invention.

The Examiner notes that the disclosed composition of the alloy fuse overlaps with the composition of the claimed invention. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed alloy fuse composition from the disclosed ranges of JP '437 because JP '437 teaches the same utility (an alloy fuse composition) throughout the whole disclosed range.

In regards to claims 3-4, the Examiner asserts that that fuses of the cited prior art are formed from alloys and would inherently be sensitive to temperature and therefore would inherently qualify as alloy thermal fuses.

In regards to claims 5-6, the Examiner asserts that the alloys of the cited prior art would have inevitable impurities.

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of JP 63-266035, JP 63-266034, and JP 63-270437 as applied to claims 3-6, and further in view of JP 11-306940.

Claims 7-10 are rejected on the same grounds as stated in the Office Action of

28 March 2006.

Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of JP 63-266035, JP 63-266034, or JP 63-270437 as applied to claims 3-6 above, and further in view of Cole (GB 2028608 A).

Claims 15-18 are rejected on same grounds as stated in the Office Action of 28 March 2006.

Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of JP 63-266035, JP 63-266034, or JP 63-270437 in view of JP 11-306940 as applied to claims 7-10, and further in view of Cole (GB 2028608).

Claims 19-22 are rejected on the same grounds as stated in the Office Action of 28 March 2006.

Claims 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of JP 63-266035, JP 63-266034, or JP 63-270437 as applied to claims 3-6 above, and further in view of Ishioka (JP 403110732).

Claims 51-54 are rejected on the same grounds as stated in the Office Action of 28 March 2006.

Claims 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of JP 63-266035, JP 63-266034, or JP 63-270437 in view of JP 11-306940 as applied to claims 7-10, and further in view of Ishioka (JP 403110732).

Claims 55-58 are rejected on the same grounds as stated in the Office Action of 28 March 2006.

Response to Arguments

Applicant's arguments filed 22 June 2006 have been fully considered but they are not persuasive.

First, the Applicant argues that the primary references (JP 63-266035, JP 63-266034, and JP 63-270437) do not teach the alloy compositions of the instant invention. The Examiner disagrees. In the abstracts of each of the primary references, the statement, "the balance being **one or more** kinds of metals among (copper (Cu) (JP '437 and JP '034 and gold (Au) or silver (Ag) (JP'035)), lead (Pb), bismuth (Bi), indium (In), cadmium (Cd), antimony (Sb), and tin (Sn)" is made with corresponding compositions that overlap the instant invention. See MPEP 2144.05 I. The Examiner admits that the primary references would not anticipate the instant invention with the current amendments to the claims. However, instant claims 1 and 2 as written remain unpatentable over the primary references for this reason.

Second, In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, for claims 1-2 and 5-6 specifically teach the composition of the fuse element. Claims 7-10 relate to a tin or silver film that covers the connection between a fuse element and

the connectors. JP 306940 teaches covering the connection between a fuse element and the connectors with a tin or silver film to form a thermal fuse. Claims 15-22 relate to a heating element for fusing off the fuse element. Cole (GB 2028608) teaches blowing a fuse to terminate heating and therefore motivates one of ordinary skill to add a heating element to the fuse. Claims 51-58 relate to bonding the fuse element to the lead conductors, having a disk-like shape at the end of conductors and having a cylindrical case. Ishioka (JP 403110732) teaches lead conductors with a disk-like shape at the ends of the lead conductors and bonding the fuse element to the front faces of the disks with a cylindrical case to achieve quick separation. The Examiner asserts that there is adequate motivation to combine these references with the primary references of JP 63-266034, JP 63-266035 or JP 63-270437.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP §706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory

action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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